

**Abstract**

Systems and methods for welding of parts are described. In one embodiment, a method for ultrasonic welding of parts by means of an ultrasonic welding device including at least a generator, a converter, and a sonotrode based on a set curve of a time-dependent welding parameter appropriate to a welding connection meeting set requirements, where the welding duration corresponding to the set curve runs between a starting time  $t_0$  and an end time  $t_e$ , wherein during welding of the parts an actual curve of the time-dependent welding parameter is measured, where in the period between  $t_0$  and  $t_e$  the actual curve is compared with the set curve and, depending on the existing difference, at least one process parameter affecting welding is altered such that an equalization of set curve and actual curve occurs during further welding.